

Exhibit A, Attachment 1

Charge to the Delta Science Program Independent Review Panel for the Long-term Operations Opinions Annual Review

Orientation and Focus

The intent of the annual review is to inform National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) as to the efficacy of the prior year's water operations and regulatory actions prescribed by their respective Reasonable and Prudent Alternatives (RPAs), with the goal of developing lessons learned, incorporating new science, and making appropriate scientifically justified adjustments to the RPAs or their implementation to support water year 2013 real-time decision making.

This year's annual review will focus on the implementation of NMFS' Long-term Operations Opinion's Clear Creek RPA Actions (I.1.1 – I.1.6) and the Spring 2012 Delta Operations in lieu of NMFS' RPA Action IV.2.1 per joint stipulation (Spring 2012 Delta Operations) for operations and fisheries for water year 2012 (October 1, 2011 through September 30, 2012) and will review:

- (1) Whether implementation of the Clear Creek RPA actions met the intended purposes of the actions;
- (2) The agency's responses to and implementation of independent review panel recommendations from the prior year's Long-term Operations Opinion Annual Review on the Clear Creek RPA actions;
- (3) Study designs, methods, and implementation procedures used; and
- (4) Recommendations for adjustments to implementation of the RPA Actions or Suite of Actions for meeting their objectives.

Materials to be Reviewed

Independent review panelists will review the following documents (technical team report and scientific products related to anadromous fish) prior to attending the two-day public workshop. These documents will be provided in electronic format.

- 1) Draft 2012 Clear Creek Technical Team Report for the Coordinated Long-Term Operation BiOp Integrated Annual Review
- 2) Spring 2012 Delta Operations in lieu of NMFS' RPA Action IV.2.1 per joint stipulation
 - Appendix A: Joint stipulation
 - Appendix B: RPA Action IV.2.1
 - Appendix C: Summary of expected benefits from alternative operations
 - Appendix D: NMFS Technical Memorandum issued March 16, 2012

- Appendix E: Tabular summary of Spring 2012 operations and cumulative tag detection data
- Appendix F: NMFS Determination for Operations per Joint Stipulation During April 1-7, 2012
- Appendix G: NMFS Determination for Operations per Joint Stipulation During April 8-14, 2012
- Appendix H: NMFS Determination on April 12, 2012
- Appendix I: NMFS Determination on April 27, 2012
- Appendix J: NMFS Determination on May 4, 2012
- Appendix K: NMFS determination on May 11, 2012
- Appendix L: Water supply impacts of operations under Joint Stipulation relative to RPA Action
- Head of Old River Barrier and survival exploration tool

3) Preliminary Report (Phase 1 Analyses) for the 2012 Acoustic Telemetry Stipulation Study

Background Information for the Purpose of Historical Context:

- Smelt Working Group (SWG) Annual Report on the Implementation of the Delta Smelt Biological Opinion on the Coordinated Operations of the Central Valley Project and State Water Project (“OCAP” Biological Opinion) Water Year 2012
- Sacramento River Temperature Task Group (SRTTG) Annual Report of Activities
- American River Group (ARG) Annual Report of Activities
- Stanislaus Operations Group (SOG) Annual Report of Activities
- Delta Operations for Salmonids and Sturgeon Group (DOSS) Annual Report of Activities
- Report of the 2011 Independent Review Panel (IRP) on the Implementation of Reasonable and Prudent Alternative (RPA) Action Affecting the Operations Criteria And Plan (OCAP) for State/Federal Water Operations (December 9, 2011)
- Federal Agencies’ Detailed Response to the 2011 Independent Review Panel’s Report (June 20, 2012)
- Report of the 2010 Independent Review Panel (IRP) on the Reasonable and Prudent Alternative (RPA) Actions Affecting the Operations Criteria and Plan (OCAP) for the State/Federal Water Operations
- Joint Department of Commerce and Department of the Interior Response to the Independent Review Panel’s (IRP) 2010 Report of the Reasonable and Prudent Alternative (RPA) Actions Affecting the Operations Criteria and Plan (OCAP) for the State/Federal Water Operations
- NMFS’ 2009 RPA with 2011 amendments
- USFWS Biological Opinion on the Long-Term Operational Criteria and Plan (OCAP) for coordination of the Central Valley Project and State Water Project (pages 279-282 and 329-356)

- RPA Summary Matrix of the NMFS and USFWS Long-term Operations Opinions RPAs
- National Academy of Science's March 19, 2010, report
- VAMP peer review report
- State Water Board's Delta Flows Recommendations Report
- NMFS RPA, Appendix 2-B, Task 4: Green Sturgeon Research
- 2011 OCAP Review Materials, Background Information and Presentations (<http://deltacouncil.ca.gov/science-program/2011-ocap-review-materials-background-information-and-presentations>)
- 2010 OCAP Annual Review Materials and Presentations (<http://deltacouncil.ca.gov/events/science-program-workshop/workshop-ocap-integrated-annual-review>)

Scope of the Review

This review is to address the following questions focused on NMFS' Long-term Operations Opinion's Clear Creek RPA Actions (I.1.1 – I.1.6) and the Spring 2012 Delta Operations:

- 1) How well did implementation of the Clear Creek RPA Actions and Spring 2012 Delta Operations meet the intended purposes of the actions?
- 2) Where the 2011 Independent Review Panel made recommended adjustments to implementation of the Clear Creek RPA Actions,
 - a) Were the adjustments made?
 - b) How well did these adjustments improve the effectiveness of implementing the actions?
- 3) How effective was the process for coordinating real-time operations with the Clear Creek technical team analyses and input as presented in NMFS' Long-term Operations Opinion [NMFS' 2009 RPA with 2011 amendments (pages 8-9)]?
- 4) (a) Were the scientific indicators, study designs, methods, and implementation procedures used appropriate for evaluating the effectiveness of the Clear Creek RPA Actions and the Spring 2012 Delta operations?

Clear Creek Technical Team Report specific question:

- Were the approaches used to develop the recommended actions to reduce water temperatures scientifically appropriate?

Spring 2012 Operations specific questions:

- i. Was the approach to real-time operations, including the use of a rock barrier at the Head of Old River (HOR) and acoustic tagged fish for triggering real-time decisions, while providing equal or greater protection to out-migrating steelhead smolts under RPA Action IV.2.1, clearly articulated and supported by best available

science in the NMFS February Tech Memo and supporting documentation?

- ii. Were the weekly adjustments made consistent with the Tech Memo and supported by the available data and information, while providing necessary protections?
- iii. Is the overall approach of using acoustically tagged fish to adjust weekly operations scientifically supportable?
- iv. Were the scientific indicators (e.g., fish behavior or drivers of habitat conditions) used appropriate for evaluating the effectiveness of the Spring 2012 Delta Operations?
- v. Were the scientific indicators and methods used for classifying and detecting “smolt-type” vs. “predator-type” tags in real time appropriate for informing the Spring 2012 Delta Operations?
- vi. How well did the particle tracking model predict fish behavior relative to acoustically tagged data?

(b) What scientific indicators, study designs, methods, and implementation procedures might be more appropriate for evaluating the effectiveness of the RPA Actions?

Clear Creek Technical Team Report specific question:

- What recommended adjustments to actions and implementation procedures for reducing water temperatures might be scientifically appropriate for the next year, while maintaining equal or greater protection for fish?

Spring 2012 Operations specific questions:

- i. What are the most important analyses to complete for the 2012 data set? What scientific methods for analyzing voluminous response data (e.g., tag detections throughout the acoustic receiver array) and treatment conditions data (e.g., magnitude and direction of flow near specific receivers) might be more appropriate for evaluating the effectiveness of the Spring 2012 Delta Operations?
- ii. What scientific indicators and methods used for classifying and detecting “smolt-type” vs. “predator-type” tags in real time might be more appropriate for informing the Spring 2012 Delta Operations?
- iii. What adjustments to the particle tracking models, as informed by the acoustically tagged fish studies, might be more effective for predicting fish behavior and informing future acoustic study design?

- iv. How should the experimental design be adjusted in future years to test key habitat drivers of smolt behavior and survival, and support weekly operational decision making?

- 5) How should multi-year data sets on NMFS' Long-term Operations Opinion RPA Action implementation be used to improve future implementation of the Clear Creek RPA Actions?

Products

The IRP will prepare the following products according to the schedule outlined in the Scope of Work:

- Preliminary assessments and impressions
- Final Review Report

Review Panel Membership

- James Gore, Ph.D., University of Tampa (Panel Chair)
- Ron Kneib, Ph.D., RTK Consulting & University of Georgia (Emeritus) (Panel Lead Author)
- James Anderson, Ph.D., University of Washington
- Mark Lorang, Ph.D., University of Montana
- John Nestler, Ph.D., USACE Engineer Research and Development Center (Retired)¹
- John Van Sickle, Ph.D., U.S. Environmental Protection Agency's Western Ecology Division (Retired)

Meeting Format

The meeting will be conducted over two days in Sacramento, CA. The first day of the meeting will involve a presentation by key individuals from the Clear Creek Technical Working Group, and several presentations related to the Spring 2012 Delta operations and associated steelhead tagging studies pursuant to the joint stipulation. Review panel members may be asked to provide a brief biographical sketch as it relates to the review. Review panel members should also be prepared to discuss any questions regarding the review materials with the technical team presenters at the meeting. The Lead Scientist or his designee will facilitate discussions. The morning of the following day, the panel will meet in private to deliberate on the charge questions. That afternoon, the public meeting will reconvene at which time the panel will provide a presentation of their initial assessment and impressions.

¹ Dr. Nestler will provide advice to the Panel on subjects relative to his expertise on ecohydraulics and coupled hydrodynamics and fish behavior modeling. He is not tasked with written assignments for the report development.